

National Weather Service - Elko The Great Basin Spotter Newsletter



Words from the Meteorologist-In-Charge	1
2003 Climate Summary	1
Early Season Snowpack Conditions	2
Why Meteorology?	3
Ruby Mountain Balloon Fest 2003	4
New Product News: The PFM	5, 6
SKYWARN Recognition	6
Storm Spotters	7
Be Prepared, Be Safe	7, 8

Words from the Meteorologist-In-Charge by Kevin Baker

I wish to recognize all of our spotters and weather observers for providing support to the National Weather Service (NWS) climate, forecast, and weather warning programs. The NWS mission is to protect lives and property and support the nation's economy. The weather information which you provide helps us prepare all of the weather products and services to accomplish our mission. Many thanks to all of you, and best wishes for a happy, healthy, and prosperous new year.

2003 Climate Summary for Northern and Central Nevada by Cliff Collins, Senior Meteorologist

Northern Nevada ended up with near normal precipitation for the year. After starting out the first three months with below normal precipitation, April and May came in much above normal. A good summer monsoon then set in with most stations reporting above normal precipitation. The fall reverted back to below average precipitation, then the year ended with a very wet December with about 200 percent of normal precipitation. Central Nevada did not fare as well receiving only about 80 percent of normal precipitation. A wet April, May, and December could not make up for below normal precipitation the rest of the year.



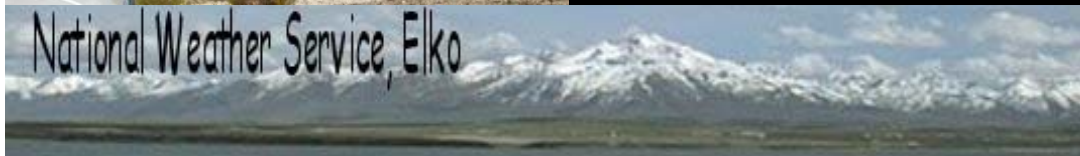
One of many rain-producing thunderstorms over the Ruby Mountains during the summer monsoon season.



Temperatures averaged about 2 degrees above normal for the year with only the months of February, April, and November recording below normal temperatures. Nevada as a whole had the second warmest year on record.

A warm, mostly clear afternoon across Northern Nevada during a period of little or no precipitation in October.

National Weather Service, Elko



Early Season Snowpack Conditions by Larry Whitworth, Senior Meteorologist

Western states rely heavily on mountain snow as one indicator of the amount of water that will be available for public and private use in Spring. Hydrologists from the National Weather Service (NWS) and the Natural Resources Conservation Service (NRCS) coordinate to measure snowpack conditions for various basins throughout the West, including Nevada.

The NRCS has determined averages for each location that can be compared to previous yearly averages to determine a potential for the springtime water supply. A monthly Water Supply Outlook Report is issued by NRCS, beginning in January each year, to keep federal, state and private interests abreast of the current conditions for planning purposes.

As of January 1st, 2004, most basins in Nevada are averaging above-normal for early Winter. The only exception is the Clover Valley / Franklin River Basin at approximately 84% of average. In general, when comparing 2004 figures with the previous two years, snowpack is lower in western Nevada basins (i.e., Lake Tahoe, Truckee River, Carson River, Walker River) and much higher than last year across basins in the northern part of the state (i.e., Northern Great, Upper Humboldt River, Lower Humboldt River).

NEVADA SNOWPACK CONDITIONS

(reference January 1, 2002-2004 Nevada Water Supply Outlook Report)

BASIN	% OF AVG. 2002	% OF AVG. 2003	% OF AVG. 2004
Lake Tahoe	165	167	148
Truckee River	168	178	143
Carson River	169	199	158
Walker River	156	184	143
Northern Great	155	76	143
Upper Humboldt River	134	85	140
Lower Humboldt River	158	74	131
Clover Valley/Franklin River	93	87	84
Snake River	144	104	124
Owyhee River	142	100	142
Eastern Nevada	118	92	118



Early winter season snowpack in Spring Creek, Nevada. Pictures taken by Science and Operations Officer Steve Apfel after the Christmas Day snowstorm deposited 15 inches at his residence.

Why Meteorology? by Brandon Peloquin, Meteorologist Intern

In our rapidly-changing world, there are literally thousands of career paths that people can travel. However, for many of the employees at the National Weather Service (NWS) in Elko, instead of becoming school teachers, doctors, miners or hotel managers, they chose to become meteorologists. According to the American Meteorological Society (AMS), a meteorologist is defined as a person “who uses scientific principles to explain, understand, observe, or forecast the earth's atmospheric phenomena and/or how the atmosphere affects the earth and life on the planet.” This definition may seem complex, but it implies that meteorologists can do quite a few different types of work in a variety of settings. Some meteorologists focus their time and effort on research, working at colleges and universities to gauge the impact of global warming and to develop improved radar technology to better predict severe thunderstorms. Other meteorologists become on-air personalities for television stations, delivering their weather reports during 6 and 11 o'clock newscasts. However, according to the AMS, the largest employer of meteorologists is the federal government, which includes the NWS. NWS meteorologists are responsible for producing forecasts for the general public in addition to special interest groups such as aviation and agricultural industries. In addition, when a Winter Storm Watch or Severe Thunderstorm Warning is issued for your area, it is a meteorologist at the National Weather Service who issued that Watch or Warning in order to notify you, the public, of hazardous conditions.

During November of last year, the NWS in Elko had the opportunity to attend career fairs in Battle Mountain, Elko, Winnemucca and Ely. At these fairs, NWS Elko meteorologists set up displays with pictures of tornadoes, thunderstorms and hurricanes to attract those students with an interest in meteorology. I personally had the privilege to attend the Winnemucca Career Fair, where over 60 students spoke with meteorologist Roger Smith and I about what it is like to be a NWS meteorologist. Tallying up all four career fairs, NWS Elko meteorologists spoke with over 200 students, with several students expressing a genuine interest in becoming a meteorologist. Most of these students explained that they have had this natural curiosity about science and the weather ever since they were very young children. This is certainly a common reason that meteorologists cite as to why they pursued meteorology as a career. Below, a few meteorologists from the NWS in Elko share what helped to coax them down that meteorological path and answer the commonly-asked question: “Why Meteorology?”



Meteorologist-In-Charge Kevin Baker

“Because ever since I was a young boy, I had my head in the clouds. I was always watching the clouds and weather over the mountains in Reno where I grew up ... I remember one March wind storm where the valley was engulfed in dust, and shingles and windows were blown from homes in the neighborhood. This really piqued my interest in weather.”



Senior Meteorologist Larry Whitworth

“I grew up in South Carolina where we experienced many tropical systems passing through or close by. It was fascinating to watch the trees bend and exhilarating to help [my] Dad tie things down in preparation for storms. By the time I reached 10 years of age, I was thumbing to the weather page of our local paper first thing each morning.”



Meteorologist Intern Brandon Peloquin

“I always had a knack for science, but there was something about the weather that really attracted me; I think part of it was its apparent mystery ... I remember as a young boy, not only did I try to get my eager hands on all of the weather books I could, but I used to prepare my own forecasts. I couldn't wait to present my forecasts to family, teachers and friends.”

Ruby Mountain Balloon Fest 2003 by Roger Smith, General Meteorologist

Hot air ballooning has become a popular participation and spectator sport over the past few decades in the United States and all across the world. The 2nd Annual Ruby Mountain Balloon Fest put on quite a show for the local community, tourists and balloon pilots on the weekend of October 24th through October 26th, as over 40 hot air balloons were launched at the peak of the festival on Saturday and Sunday, making this hot air balloon event the 2nd largest in Nevada.

Meteorologists from the Elko NWS office were asked to provide detailed weather briefings to the balloon pilots Friday through Sunday mornings at 6:30 a.m. The weather pattern in October was dominated by a strong area of high pressure aloft, and it was a dry month. High temperatures at the beginning of the third week of October had been in the 70's to middle 80's, but a cold front from western Canada crossed northern Nevada early on Thursday, October 23rd resulting in cooler high temperatures in the 60's and lower 70's. Strong surface high pressure strengthened across the northern Great Basin Friday through Sunday, bringing mostly clear, cold nights and seasonably mild, autumn afternoons to the Elko area. Morning low temperatures were chilly all three days with lows ranging from the upper teens to middle 20's in the Elko and Spring Creek areas.

Meteorologist Brian Fehrman presented a weather briefing on Friday at Sherman Station to the pilots launching from the Elko City Park. Meteorologists Paul Eyssautier and Roger Smith gave weather briefings at the Spring Creek Sports Complex on Saturday and Sunday mornings. Each weather briefing consisted of a general 3-day forecast and detailed forecasts for launch time at approximately 7 a.m. and 12 noon. The detailed forecasts consisted of sky conditions, inversion height (level at which the temperatures starts to decrease with increasing altitude), and the direction and speed of the wind at 1000-foot intervals from the ground up to 5000 feet. Balloon pilots can control the rate of ascent or descent, or even stay nearly stationary at one level, by controlling the amount of hot air contained within the balloon's envelope, but they are steered through the atmosphere by the winds aloft. In order to set the balloon in a particular direction the pilot must know or find out through experimenting what the wind direction and speed are at different altitudes above the ground surface. The weather briefing gives them this information, so they can plan a flight route.

Briefings were generally about 20 minutes long with the meteorologists using a microphone to communicate and answer any pilot questions. Hard copies of the forecast were distributed to the pilots right after the briefing. Despite the chill in the early morning air, it was a beautiful sight to see the balloons ascend into the bright blue skies above Elko and Spring Creek. The event has grown rapidly from 23 balloons in 2002 to over 40 balloons in 2003, with an even greater number of balloonists expected for the 2004 festival.



Balloon enthusiasts gather during a chilly autumn morning in late October to prepare for the annual Ruby Mountain Balloon Fest.

New Product News: The PFM by Brian Fehr, Senior Meteorologist

One of the new text products being issued by the National Weather Service is the Point Forecast Matrices product, or PFM, which displays various forecasted weather parameters for pre-defined points within a Weather Forecast Office's area of responsibility. This product is in a high resolution matrix format that allows for rapid scanning of a large number of forecast parameters and provides customers with information that is not found in other, more standard National Weather Service products. The PFM gives an overview of the weather for the next 7 days with more detail in the first 3 days of the forecast. Through this more detailed product, the National Weather Service is striving to improve communications to the public and hazards community, increase forecast resolution, and provide everyone with information on which they can base their decisions.

Example:

POINT FORECAST MATRICES
NATIONAL WEATHER SERVICE ELKO, NEVADA
220 AM PST MON JAN 26 2004

NVZ032-270000-
ELKO-ELKO NV
40.83N 115.79W
220 AM PST MON JAN 26 2004

DATE	MON 01/26/04									TUE 01/27/04									WED 01/28/04								
UTC 3HRLY	11	14	17	20	23	02	05	08	11	14	17	20	23	02	05	08	11	14	17	20	23	02					
PST 3HRLY	03	06	09	12	15	18	21	00	03	06	09	12	15	18	21	00	03	06	09	12	15	18					
MAX/MIN						27				16				31			18					28					
TEMP	11	9	14	24	27	23	20	18	17	16	21	28	31	26	23	21	20	18	21	26	28	24					
DEWPT	9	7	11	15	16	17	17	16	15	14	17	18	18	20	20	19	18	17	18	17	17	18					
RH	91	91	88	68	63	77	88	92	92	92	84	66	58	78	88	92	92	96	88	68	63	77					
WIND DIR	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	W	W	W	W	W	W	W	W	W	W					
WIND SPD	6	6	8	8	10	11	9	9	10	10	10	11	12	13	13	12	10	10	12	13	14	14					
CLOUDS	SC	SC	SC	SC	SC	BK	BK	BK	BK	BK	BK	BK	BK	BK	BK	BK	BK	BK	BK	BK	BK	BK					
POP 12HR						0				10				50			40					40					
QPF 12HR						0				0.02				0.09			0.03					0.02					
SNOW 12HR						00-00				T				1													
SNOWSHWRS										C	C	C	C	C	C	C	C	C	C	C	C	C					

DATE	THU 01/29/04					FRI 01/30/04					SAT 01/31/04					SUN 02/01/04				
UTC 6HRLY	08	14	20	02	08	14	20	02	08		14	20	02	08		14	20	02		
PST 6HRLY	00	06	12	18	00	06	12	18	00		06	12	18	00		06	12	18		
MIN/MAX		17		31		19		29			14		27			15		29		
TEMP	19	17	28	26	22	19	27	23	17		14	25	22	18		15	26	24		
DEWPT	18	16	19	20	19	18	19	18	16		14	16	17	15		13	17	18		
PWIND DIR		W		SW		SW		W			NW		SW			W		N		
WIND CHAR		BZ		BZ		BZ		BZ			GN		GN			BZ		GN		
AVG CLOUDS	BK	BK	BK	BK	BK	BK	BK	BK	BK		BK	BK	BK	BK		BK	BK	BK		
POP 12HR		30		30		20		40			20		20			30		30		
RAIN SHWRS				C	C															
SNOWSHWRS	C	C		S	S	C	C	S	S	S	S	C	C	C	C					

On the following page, a key for deciphering the PFM product is provided.

Continued, New Product News: The PFM by Brian Fehr, Senior Meteorologist

Point Identification/Location

Bulletin Headers UGC zone codes, Latitude, longitude, and issuance time

0-60 hour section

Valid Month and Day

Valid Hour UTC

Valid Hour PST

MX/MN - Maximum/minimum temperature in degrees F for daytime/nighttime period

TEMP - 3 hourly snapshot of temperature

DEWPT - 3 hourly snapshot of dew point temperature

RH - 3 hourly snapshot of relative humidity

WIND DIR - 3 hourly snapshot of surface wind direction using 8 compass points (N, NE, E, SE, S, SW, W, NW)

WIND SPD - 3 hourly snapshot of surface wind speed in miles per hour

CLOUDS - 3 hourly snapshot of cloud cover in category codes (**CL**ear, **FeW**, **SC**attered, **BrOK**en, **OV**ercast) *Note: Bold Capital letters denote the code in the PFM product

POP 12HR - 12 hour likelihood, expressed at a percent, of measurable precipitation

QPF 12HR - 12 hours forecast of total liquid precipitation

SNOW 12HR - Total snowfall accumulation in whole inches (or "T" for Trace) for 12 hour period (winter only)

PRECIPITATION TYPE (SNOW, RAIN, etc.) - Listed if precipitation is forecast with a code for probability

For example: S=Slight chance, C=chance, L=Likely, etc.

OBVIS - Obstructions to visibility

For example: PF=Patchy Fog, K=Smoke, etc.

WIND CHILL and HEAT INDEX - Generated if local WFO criteria are met...currently WIND CHILL is generated for WFO Elko if more than 10 degrees below the temperature

MIN CHILL and MAX HEAT - 6 hour maxima and minima of WIND CHILL and HEAT INDEX if local criteria are met

61 hour through day 7 section

This is the days 4-7 section. Most included elements are the same as above except:

PWIND DIR - Predominant wind direction for 0600-1800 or 1800-0600 Local Time

WIND CHAR - Coded wind character for 0600-1800 or 1800-0600 Local Time

For example: LT=Light, BZ=Breezy, WY=Windy, etc.



SKYWARN Recognition Day by Tim Sedlock, General Meteorologist

SKYWARN Recognition Day was developed in 1999 by the National Weather Service (NWS) and the American Radio Relay League (ARRL) to celebrate the contributions that volunteer SKYWARN radio operators make to the NWS to help alert people in times of emergencies. During this day, SKYWARN operators visit NWS offices and contact other radio operators across the world.

For the second straight year, the Elko Amateur Radio Club participated in the event with meteorologists from the NWS Office in Elko, Nevada. Radio Club members and meteorologists spent 9 hours on Saturday, December 9, 2003 operating radios, making contacts with over 350 other operators, including operators from Canada and Puerto Rico.



Meteorologists Paul Eyssautier (in the doorway) and Tim Sedlock (back right, seated) team up with members of the Elko Amateur Radio Club to contact other radio operators across the world.

Storm Spotter Search by Paul Eyssautier, Warning Coordination Meteorologist

We continue to search for additional Storm Spotters throughout northern and central Nevada. Tell your friends and neighbors about this volunteer program. Not only are you given a chance to support your community, but there are also free gifts. For those attending our Weather Safety and Severe Weather Spotter Workshops, volunteer spotters receive a magnetic card with our toll free number. This can be displayed on refrigerators or can be kept in vehicles. Those who attend our Spotter Workshops are also provided a rain gauge to help report precipitation in addition to an Emergency Disaster Wheel that provides steps to follow to mitigate various storm situations. There is also room on the wheel to write down doctors' phone numbers and other important information. Last, but not least, attendees will receive an Advance Spotter Training Guide. This is a reference guide that helps you determine the type of weather that the National Weather Service is very interested in hearing about.

Those of you that already are volunteer spotters and have not received these items, please call Paul Eyssautier, Warning Coordination Meteorologist at 775-778-6716. Also, give us a call if you are interested in having us present the Weather Spotter program in your community. This could be conducted along with other activities, such as training for Volunteer Fire Departments, Law Enforcement, Civil Air Patrol, or Emergency Managers.

Be Prepared, Be Safe by Brandon Peloquin, Meteorologist Intern

It is 5:00 a.m. on a cold Friday morning in northeast Nevada. As you drink your first morning cup of coffee, you hear on your NOAA weather radio that the National Weather Service in Elko has just issued a Winter Storm Watch for Saturday. You may stop to think to yourself: "What does this mean?" In a word, this means it is time to PREPARE!

When the National Weather Service issues a Winter Storm Watch, this means that severe winter conditions are possible within the next day or two and now is the time to GET READY for the storm – BEFORE it strikes! If you are at home when a Winter Storm Watch has been issued, your initial concerns will be possible loss of power, loss of heat and a shortage of supplies if winter conditions persist for a prolonged period of time. Make sure that you have a working flashlight and batteries, extra non-perishable food and bottled water, an emergency heating source such as a fireplace or space heater, and, of course, your NOAA weather radio to remain informed regarding winter weather conditions.

If you are in your car or truck when you hear that a Winter Storm Watch has been issued, plan your travel accordingly and stay abreast of the latest storm updates. Keep your gas tank full to prevent ice build-up in fuel lines and notify others of your whereabouts. Also, make sure that you have an easily accessible survival kit in your vehicle, containing blankets, extra clothing, non-perishable food and bottled water, a sack of sand or cat litter, a shovel and a tow rope.

If severe winter weather is imminent or is already occurring, the National Weather Service will upgrade the Winter Storm Watch to a Winter Storm Warning or Heavy Snow Warning. At this time, you should stay indoors, if possible. If you are caught in a winter storm while driving and become stranded, remain in your vehicle as you could become rapidly disoriented by wind-driven snow and cold outside your vehicle. Run your motor about ten minutes every hour for heat, but make sure to crack a window so toxic carbon monoxide won't build up in the vehicle. Make sure you allow yourself to be visible to rescue people by turning on hazard and/or interior lights or by tying a red cloth to the door or antennae.

Remember that everyone is at risk during winter storms. However, PREPARING for the storm BEFORE it strikes can help to reduce your risk during hazardous winter weather. On the following page is a review of the Winter Weather Watch, Warning and Advisory Criteria implemented for northern and central Nevada.

Review: Winter Weather Watch, Warning and Advisory Criteria For Northern and Central Nevada by Meteorologists at the National Weather Service Office in Elko, Nevada

Winter Storm Watch or Warning	A combination of gusty winds, sleet and/or snow. Heavy snow of 6 inches or more in 12 hours or 8 inches or more in 24 hours. For elevations above 8000 feet, 8 inches or more in 12 hours and 12 inches or more in 24 hours. A Watch is generally issued 12 hours or more before an event.
Blizzard Warning	Combination of snow with sustained winds of 35 mph or greater for 3 hours or more. Visibilities generally are one quarter mile or less.
Heavy Snow Warning	Widespread snow with accumulations similar to a Winter Storm Warning.
Snow Advisory	Snowfall of 3-6 inches in 12 hours or 4-8 inches in 24 hours. For elevations above 6500 feet, 5-8 inches in 12 hours or 7-12 inches in 24 hours.
Freezing Rain Warning	Ice accumulations of one half inch or more.
Freezing Rain Advisory	Ice accumulations less than a half inch.
Blowing and Drifting Snow Advisory	Visibility reduced in blowing snow, but better than 1/4 of a mile
Wind Chill Advisory	Widespread wind chill values of -20 to -35 degrees.
Wind Chill Warning	Widespread wind chill values of -35 degrees or colder.

National Weather Service
3720 Paradise Dr.
Elko, NV 89801



Mail to:

Articles contributed by NWS Elko staff
Editor: Brandon Peloquin
Assistant Editor: Tim Sedlock